

Docket No. F-6690

Ser. No. 09/700,566

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application.

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1. (Currently Amended) [[A]] An unbonded maraging steel plate with a thickness less than 0.5 mm. and comprising:

a chemical composition consisting essentially of, in % by weight:

C: 0.01% or less,

Ni: 8-19%,

Co: 8-20%,

Mo: 2-9%,

Ti: 0.1-2%,

Al: 0.15% or less,

N: 0.003% or less,

O: 0.0015% or less,

and the balance Fe; and

the Ti component segregation ratio and the Mo component segregation ratio in its structure of 1.3 or less each.

2. (Withdrawn) A process for producing a maraging steel comprising the steps of:

Docket No. F-6690

Ser. No. 09/700,566

melting a steel with the composition as described in Claim 1;
casting the molten steel to obtain a steel ingot;
hot forging the steel ingot at a forging ratio of at least 4 for a forged piece;
then submitting to soaking treatment by keeping the forged piece one or
more times at a temperature range of 1100-1280°C for a total hot holding time of
10-100 hours; and
then plastic working the forged piece.

3. (Currently Amended) [[A]] An unbonded maraging steel plate with a
thickness less than 0.5 mm. and comprising:

a chemical composition consisting essentially of, in % by weight:

C: 0.01% or less,

Ni: 8-19%,

Co: 8-20%,

Mo: 2-9%,

Ti: 0.1-2%,

Al: 0.15% or less,

N: 0.003% or less,

O: 0.0015% or less,

and the balance Fe; and

Docket No. F-6690

Ser. No. 09/700,566

a nonmetallic inclusion having a size of 30 μm or less when the size of the nonmetallic inclusion is expressed by the diameter of a corresponding circle taking the circumferential length of the nonmetallic inclusion to be the circumference of the corresponding circle.

4. (Currently Amended) ~~The maraging steel plate as set forth in Claim 3,~~ wherein the Ti component segregation ratio and the Mo component segregation ratio in its structure is of 1.3 or less each.

5. (Withdrawn) A process for producing a maraging steel comprising the steps of;

melting a steel having the chemical composition as described in Claim 3;

casting the molten steel to obtain a steel ingot of a taper $T_p = (D_1 - D_2) \times 100/H$ of 5.0-25.0%, a height-diameter ratio $R_h = H/D$ of 1.0-3.0, and a flatness ratio $B = W_1/W_2$ of 1.5 or less, taking the diameter of a corresponding circle with a circumference corresponding to the circumferential length of the top of the steel ingot as D_1 , the diameter of a corresponding circle with a circumference corresponding to the circumferential length of the bottom of the steel ingot as D_2 , the height of the steel ingot as H , the diameter of a corresponding circle with a circumference corresponding to the circumferential length of the steel ingot at a

Docket No. F-6690

Ser. No. 09/700,566

location of $H/2$ as D , and the length of the long side and length of the short side of the steel ingot at a location of $H/2$ as $W1$ and $W2$, respectively; and

plastic working the steel ingot to make the size of a nonmetallic inclusion in the steel be $30\text{ }\mu\text{m}$ or less when the size of the nonmetallic inclusion is expressed by the diameter of a corresponding circle taking the circumferential length of the nonmetallic inclusion to be the circumference of the corresponding circle.

6. (Withdrawn) A process for producing a maraging steel comprising the steps of;

melting a steel having the chemical composition as described in claim 3;

casting the molten steel to obtain a steel ingot of a taper $T_p = (D1 - D2) \times 100/H$ of 5.0-25.0%, a height-diameter ratio $R_h = H/D$ of 1.0-3.0, and a flatness ratio $B = W1/W2$ of 1.5 or less, taking the diameter of a corresponding circle with a circumference corresponding to the circumferential length of the top of the steel ingot as $D1$, the diameter of a corresponding circle with a circumference corresponding to the circumferential length of the bottom of the steel ingot as $D2$, the height of the steel ingot as H , the diameter of a corresponding circle with a circumference corresponding to the circumferential length of the steel ingot at a location of $H/2$ as D , and the length of the long side and length of the short side of the steel ingot at a location of $H/2$ as $W1$ and $W2$, respectively;

Docket No. F-6690

Ser. No. 09/700,566

forging the steel ingot at a forging ratio of at least 4 for a forged piece;
then submitting to soaking treatment by keeping the forged piece one or
more times in a temperature range of 1100-1280°C for a total hot holding time of
10-100 hours; and

then plastic working the forged piece to make the size of a nonmetallic
inclusion in the steel be 30 μm or less when the size of the nonmetallic inclusion
is expressed by the diameter of a corresponding circle taking the circumferential
length of the nonmetallic inclusion to be the circumference of the corresponding
circle.

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